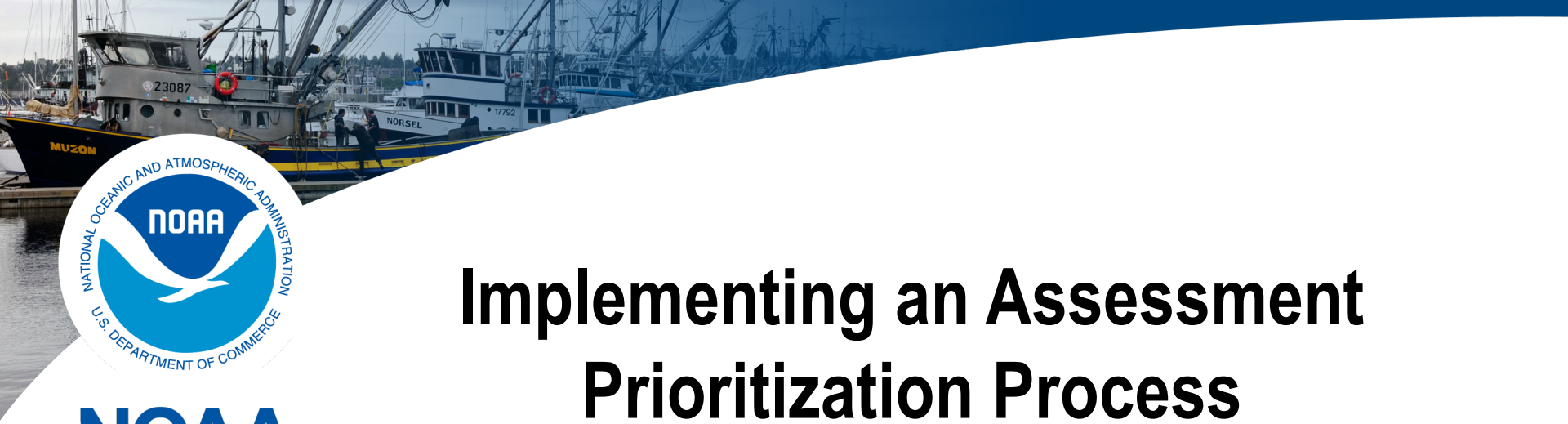

Implementing an Assessment Prioritization Process

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Why Prioritize?

- Some stocks need very good and timely assessments, but no assessment will ever provide perfect information, real-time
- All managed stocks need some level of assessment, but costs could exceed benefits for some low-valued stocks
- The goal is a prioritized portfolio of right-sized assessments for each stock
- Achieved through facilitation and standardization of each regional prioritization process
- Nationally, gaps in capability will be more apparent and can be considered for future investments

Assessment Goal

- Assessment goal is to provide scientific information needed to prevent overfishing (through forecast of annual catch limits), rebuild overfished stocks and achieve optimum yield
- How good does each stock's assessment need to be to achieve this goal?
- How frequently must it be updated?
- These stock-specific assessment goals allow us to quantify priorities among stocks

Assessment Prioritization History

- Currently, stock assessment scheduling is region-specific under a national umbrella. Each region has a process (e.g. NRCC) involving the local NMFS Science Center, Fishery Management Council and Commission;
- OMB requested that NMFS develop a prioritization system for fish stock assessments
- Some regions, particularly NE and SE, have worked on assessment scheduling and prioritization in recent years
- A NMFS working group was formed in 2011 to develop a prioritization system
- In 2013, call for prioritization appeared in Congressionally requested GAO review of stock assessments, and in an introduced bill on improved science for MSA

Data Needed for Prioritization

- Commercial Fishery Importance
- Recreational Fishery Importance
- Ecosystem Importance
- Stock biology (principally: natural mortality rate and recruitment variability)
- Stock Status info from previous assessments
- Assessment history, unresolved uncertainties

Factors Considered

FACTOR	First-time assessments	Target assessment level	Target Assessment frequency	Priority for assessment	Priority for benchmark
Fishery importance	Yes	Yes	Yes	Yes	
Ecosystem importance	Yes	Yes	Yes		
Stock status	Yes, from ORCS & PSA			Yes	
Stock biology		Yes	Primary		
Assessment history; Due or overdue?				Primary	
New data indicates drift from forecast				Yes	
New data can raise level or resolve uncertainty					Yes

Factors In Fishery Importance

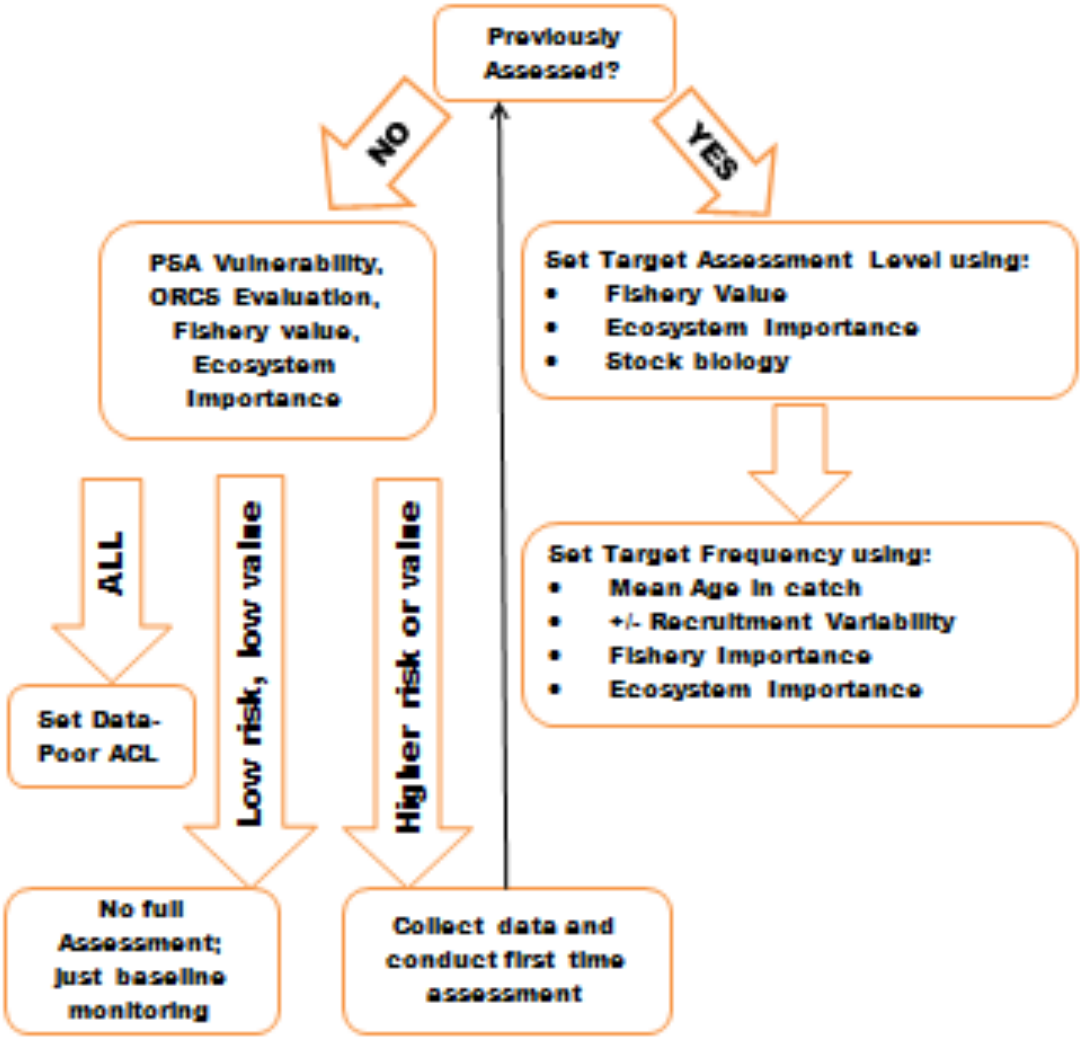
- Log(commercial catch value) scaled to max of 5.0 nationally
- Log(recreational catch amount) scaled to max of 5.0 nationally
- +1.0 for stocks on rebuilding plans because their recent catch value is depressed below long-term potential;
- +1.0 for stocks that have a particularly high constituent demand for excellence in stock assessment. For example, stocks that are in catch shares programs or stocks that are in a multi-stock fishery and their status is limiting the fishery's ability to harvest more productive stocks in that multi-stock fishery. In this case, good assessment of the smaller, less valuable stock is important to prevent undue restriction on harvesting of the more valuable stock. A cap on the percentage of stocks that can receive this bonus will need to be established to prevent excessive usage rendering it meaningless.
- +1.0 for stocks that have a high non-catch value (for example underwater viewing of reef fish).
- +1.0 for stocks important to subsistence fishing.

Stock Status Scoring

F Category	Score		Abundance Category	Score
LOW IMPACT $F_C <= 0.25*F_{MSY}$	1		ABOVE TARGET $SB_C > 1.25*SB_{MSY}$	1
MODERATE IMPACT $0.25*F_{MSY} < F_C <= 0.9*F_{MSY}$	2		NEAR TARGET $MSST < SB_C < =1.25*SB_{MSY}$	2
CAUTION or UNKNOWN $F_C <> F_{MSY}$ is unknown	3		CAUTION or UNKNOWN $SB_C <>$ MSST is unknown	3
HIGH IMPACT $F_C > 0.9*F_{MSY}$	4		OVERFISHED $SB_C <=$ MSST	4
			On Rebuilding Plan	" +1"

Prioritization Set-Up

- Among stocks that never have been assessed:
  - *Identify those OK with baseline monitoring, and*
  - *Those needing priority for first-time assessment*
- Among previously assessed stocks, set medium-term assessment goals
  - *target assessment level for each stock; this drives the data requirements*
  - *Set target assessment update frequency for each stock*



Setting Assessment Frequency

1. Mean Age of Fish in Catch * Scaling Factor
2. Adjust for recruitment variability:

a. -1 year(e.g. more frequent) for stocks with high recruitment variability;

b. + 1 year for stocks with low recruitment variabilityvariability

3. Adjust for fishery value:

a. – 1 year for stocks with commercial or recreational score above a level to be specified

b. + 1 year for stocks with commercial and recreational score below a level to be specified

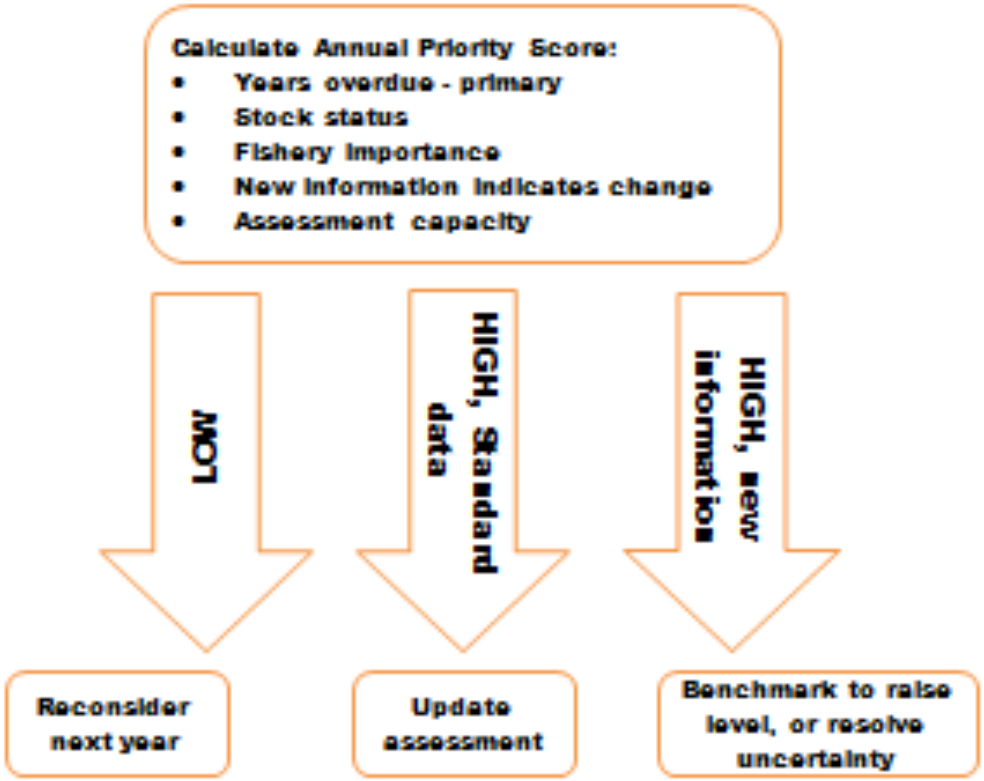
4. Adjust for ecosystem importance similarly to fishery value

EXAMPLE:

1. Mean age in catch is 4.5 years and scaling factor is 1.0;
2. Recruitment variability is high (so subtract 1 year);
3. Fishery value is high for commercial but low for recreational (so subtract 1 year);
4. Ecosystem importance is moderate (so no change to target);
5. Target Assessment Frequency = 4.5*1.0 -1 -1 +0 = 2.5 years
6. Round down to 2 years.

Setting Priorities

- Annually update priorities for conducting assessments (includes traffic light)
- Pass on stocks with low score
- Update assessments for stocks that are at or exceed their target update period
- Benchmark assessments for stocks for which new data or methods will allow resolving uncertainties or advancing to higher level



Prioritizing Assessments

1. Years overdue relative to target frequency;
2. Add stock status score divided by 10;
3. Add up to 1.0 if there is new information that indicates a chance from the past assessment;
4. Add fishery importance divided by 10;

EXAMPLE:

1. Assessment is 2 years past its target date for updating;
2. Stock status score is 6;
3. There is no new information that indicates an obvious change
4. Commercial value score is 3.5 and recreational score is 1.4 and no additional fishery importance factors;
5. Priority score = 2.0 + 6.0/10 + 0.0 + (3.5+1.4)/10 = 3.09

Prioritization Outcome

- The whole portfolio of assessment needs will be transparent to all participants in assessment process;
- Important assessments will get done when they need to get done, not sooner and not a lot later;
- This “right-sizing” of the assessment frequency for important stocks may help release some assessment effort for currently under-assessed stocks.

Implementation Steps

1. Distribute draft to Fishery Management Councils, NMFS Regional Offices, Fishery Commissions and to public via website – February 2014;
2. Create database of needed information as an added table in the Species Information System – begin winter 2014;
3. Receive comments from Council by May 1, 2014 and summarize to the May CCC;
4. Each region begins work on comprehensive Productivity-Susceptibility Analysis and Only Reliable Catch Analysis to serve as baseline for determining which stocks need assessments – begin spring 2014;
5. Test prioritization system to determine if adjustments to scaling factors are needed to achieve reasonable results – summer 2014;
6. Make database available to regional coordinating committees charged with setting priorities for regional assessments – fall 2014; Create access through SIS public portal;
7. Commission Management Strategy Evaluations to test the expected performance of this prioritization system over time – 2015;
8. Explore Decision Support System facilitators to guide regional coordinating committees through application of the prioritization process – 2016.